

This is author version of article published as:

Patton, Wendy A. and Lokan, Jan (2001) Perspectives on Donald Super's Construct of Career Maturity. *International Journal for Educational and Vocational Guidance* 1(1/2):pp. 31-48.

Copyright 2001 Springer

Perspectives on Donald Super's Construct of Career Maturity

Wendy Patton
Centre for Cognitive Processes in Learning
Queensland University of Technology
Kelvin Grove Campus QLD 4059
Australia

Jan Lokan
Australian Council for Educational Research
Private Bag 55
Camberwell VIC 3124
Australia

Submitted by invitation to the AIOSP/IAEVG journal special issue on Donald Super's work.

Perspectives on Donald Super's Construct of Career Maturity

ABSTRACT

The evolution of Donald Super's construct of 'career maturity' (CM) is traced from the Career Pattern Study of the 1950s to the innovative research of the Work Importance Study in the 1980s. Successful attempts to establish the portability of the CM construct across countries, particularly in Canada and Australia, are described. An overview of instruments derived from Super's theories about career development and maturity is presented, together with an overview of research on the correlates of CM. Reference is made to implications of changes over time in the nature of work and the nature of careers for Super's theories. As others have recognised, evolving changes in these areas mean that theories, to remain relevant, also need to evolve. The article includes discussion of some of the dimensions identified more recently as useful in explaining career development levels and patterns, including career indecision and work role salience.

Initial conceptualisation

Initially called 'vocational maturity', the construct now known as 'career maturity' (CM) was proposed by Super 45 years ago (Super, 1955). Super had become interested in describing people's career-related behaviours in developmental terms more than 15 years previously, advocating that occupational choice should be viewed 'as an unfolding process, not a point-in-time event', which is regarded by some as his 'single most important idea' (Super, Savickas & Super, 1996, p. 122). In the context of developmental theories current at the time, Super saw careers as unfolding in a series of developmental stages, with each stage characterised by certain 'appropriate' tasks. In specifying the sets of tasks, he also thought about how progress in these tasks might be measured so that individuals could be compared both ipsatively and with others at the same developmental stage and therefore supposedly undertaking the same tasks.

Almost all instrument development and much of the research related to the CM construct has addressed the latter kind of comparison.

Though specifying career development stages from early adolescence through to retirement age, Super and his colleagues devoted their initial efforts to theorising about and studying adolescents in their high school years and into early adulthood. In keeping with the post-war boom times of full employment and male dominance of the work force, their Career Pattern Study, which began in 1951, was designed to follow a cohort of ninth grade males as they moved through what was expected to be predictable stages of self-actualising careers. The high school years and years immediately following were conceptualised as a time when students would be gathering information about themselves and the world of work through a process of effective exploration, in order to 'crystallize' and specify a 'wise' career choice and embark on the appropriate preparation for it. Awareness of a range of factors, including the need for planning, the need to set and pursue goals and the need to take contingency factors into account, were specified as key aspects as well as the actual undertaking of activities to explore the world of work.

Measures of CM

The first practical measure of CM was published not by Super but by one of his students (who later became a colleague), John Crites. Building on Super's formulation, Crites (1965) identified several 'choice competencies and attitudes' as pertaining to CM, the attitudinal components of which he included in his 1965 *Vocational Development Inventory – AS* (VDI-AS). As the first available research instrument to assess CM, the VDI-AS and its successor, the *Career Maturity Inventory* (Crites, 1978), which by this time included measures of the cognitive components, have been the most prominent in

the research literature. Along with the prominence also came criticisms, as some reviewers and researchers found the attitude scale correlating as highly as the cognitive scales with other cognitive measures and were not able to replicate the hypothesised factor structure empirically (e.g. Westbrook, Cutts, Madison & Arcia, 1980). Further, some found that scores often did not increase with age or grade (thought to be a necessary condition for measures of a developmental construct applied at the appropriate stage) (e.g. reviews in Buros, 1978). Despite these drawbacks, much has been learned from studies using the CMI about factors related to CM that is of both theoretical and practical interest. The appearance of a further revision of the CMI (Crites & Savickas, 1995), which is both shorter and less narrow in its application, attests to its value and likely enduring influence as a useful tool for career psychologists and practitioners.

Meanwhile, in the late 1960s and early 1970s, work by Super and other colleagues had begun on the construction of the *Career Development Inventory* (CDI), which went through three trial versions before the fourth was eventually published in 1981. Specifications for the CDI arose directly from Super's formulation of career development tasks appropriate for the 'Exploration' stage from mid adolescence into early adulthood. Various sub-dimensions of attitudinal and cognitive dimensions were conceptualised, items were developed, and a series of data collections undertaken as the instrument was refined for publication. The published version has two main non-cognitive scales focusing on 1) career planning and 2) awareness and use of resources for exploration, and three cognitive scales. Two cognitive scales are general, focusing on 1) information about the world of work and 2) knowledge of decision-making processes. The third cognitive scale relates to knowledge of the preferred occupation, requiring many different scoring keys. The developers of the CDI (Super & Forrest, 1972; Super,

Thompson, Lindeman, Jordaan & Myers, 1981; Thompson & Lindeman, 1981; 1984) were able to establish that the hypothesised non-cognitive dimensions were either not correlated or correlated at very low levels with other cognitive measures (e.g., achievement) and that scores on all dimensions in most cases increased with age and grade in the USA.

Working from the 91 items in Super and Forrest's 1972 version of the CDI, the second author of this article prepared an adaptation for English Canada and used it in her doctoral dissertation (Lokan, 1977). The proposed factor structure was confirmed, as were other psychometric properties of the CDI scales, in a sample of over 700 students in grades 9 and 11 from five composite high schools. In a multivariate analysis of variance, the grade 11 students were shown to score significantly higher on all dimensions than the grade 9 students (Lokan, Boss & Patsula, 1982). In further work with the CDI, Lokan began with the expanded third version of the US instrument (191 items) and prepared an adaptation for Australia in 1979-80. Committees of career educators assisted by reviewing all the cognitive items to ensure the local validity of items retained and/or modified. Again, the hypothesised factor structure of the main non-cognitive and cognitive dimensions was confirmed. (An attempt was made to adapt the specific 'Knowledge of preferred occupation' scale, but this was eventually abandoned due to the difficulties in validating the many scoring keys for another country.) A revised, 72-item version was prepared and normed in national random samples of 14-year-old students (in conjunction with another study) and students in grade 11 (Lokan, 1984). This version retains the Career Planning, Career Exploration, World of Work Information and Career Decision Making scales in parallel with the published US version.

The two studies cited in the previous paragraph demonstrate the transferability of Super's CM construct at least to other English speaking countries, though work by Super and others in the UK was not as successful with some of the dimensions (Ward, 1981). The Canadian school system is similar to the US school system in many respects – school starting age (six years) is similar, high school in most provinces encompasses ninth to twelfth grades, most schools are comprehensive and high proportions of students remain at school to the end of twelfth grade. The Australian school system tends to be closer to the British system, in that most students begin school at age 5, students begin high school at about age 12, there is an influential private school system, catering for up to 40 per cent of the senior high school enrolment, functioning alongside the state school system, and retention to twelfth grade has traditionally been low compared with that in the USA. In other ways the Australian system is closer to the US system than the traditional British system in that schools are mostly comprehensive with very little selection of students into different types of high school. The findings with the CDI in Australia suggest that the instrument's validity would probably hold up in societies that are at least as dissimilar in their education systems as Australia is to the USA.

Other measures of CM in adolescence have been prepared, but Crites' and Super's instruments are the most closely related to Super's theories. Further instruments of relevance are those designed to measure progress with tasks at other developmental stages, for example, the *Adult Career Concerns Inventory* (ACCI) (Super, Thompson & Lindeman, 1988). An example of research utilising the ACCI was reported by Williams and Savickas (1990), who found that the empirically determined concerns of adults in the maintenance stage of their careers fitted closely with Super's model of tasks appropriate to that stage.

Correlates of CM

Research into the CM construct and its correlates is now well into its fifth decade, and, apart from an occasional slump, there has been little sign of reduced vigour on the part of researchers. Correlates of CM which have received recurring attention include age and level of education, gender, socioeconomic status, and a wide spectrum of career-related variables such as vocational identity, career decision, career indecision and work role salience. However, much of the existing work has not been conducted in a systematic way and has been carried out in small 'convenience' samples, and Super has emphasised the need for the construct's further clarification (Nevill & Super, 1988; Super, 1990). The 1990s have actually seen a resurgence of research into CM, partly from those who are proposing ways in which the construct needs to be extended to encompass the changing world of work as societies progress further into the information and communication technology era. Another explanation for the renewed vigour is related to the increase in prominence in the field of career development of a focus on cultural relevance of theories and their related constructs (Fouad, 1988; Ponterotto & Casas, 1991). Yet another aspect of the construct that is receiving increasing attention is the relationship between CM and paid work.

Age

The literature is far from united on the presence of differences based on age in CM scores. In relation to age, while theoretical assumptions might suggest uniform development in CM, practical considerations such as the planning activities needed for immediate decisions at transition points imposed by education systems would suggest uneven development. Early studies with the US CDI (Thompson & Lindeman, 1981) found significant differences in attitudes between grades 9 and 11, and between 9 and 10 and 9 and 12. On the cognitive scales, there were no significant differences between

grades 10, 11 and 12. Early work with the CMI (Herr & Enderlein, 1976) did show an incremental increase in CM from grade 9 to grade 12. Other work has also shown that school students in higher grades have higher CM scores than those in lower grades (Neice & Bradley, 1979; Post-Kammer, 1987; Wallace-Broschious, Serafica & Osipow, 1994). Similarly, research with college students has shown that CM increases with age (Healy, O'Shea, & Crook, 1985; Healy, Mitchell, & Mourton, 1987; Luzzo, 1993). These studies have been cross-sectional. In a rare longitudinal study, Levy (1987), using the Australian CDI, demonstrated increases in both CM attitudes and knowledge from grade 9 to grade 12 in her doctoral research in which she followed several hundred students.

By contrast, ninth graders did not score lower than twelfth graders in US research reported by Fouad (1988). In this same study, Fouad reported an increase across grades in an Israeli sample, findings that have also been reported in studies in Australia (Lokan, 1984; Patton & Creed, submitted), Canada (Lokan, Boss & Patsula, 1982; Alvi & Khan, 1983), South Africa (Watson & Van Aarde, 1986), Nigeria (Achebe, 1982), and in Lebanon (Moracco, 1976). More recently, however, among other atypical findings, Powell and Luzzo (1998) demonstrated no relationship between age of high school students and their levels of CM. The authors surmised that their lack of expected results may have been due to the homogeneity of their sample in socioeconomic terms combined with possible presence in the district of good career development programs in junior high school. They also surmised that perceived educational and occupational opportunities in the area may have been more influential in the students' career development than age or class standing.

Gender

Research findings exploring the impact of gender on CM are also equivocal. The great majority of studies, conducted over two decades, has found that females of a

number of age groups and in several countries have higher scores on CM measures than males (Alvi & Khan, 1983; Herr & Enderlein, 1976; Lokan, 1984; Luzzo, 1995; Rojewski, Wicklein & Schell, 1995; Westbrook, 1984). In other studies (Fouad, 1988), females were higher on some subscales only. Some studies have however reported males scoring higher than females, including Achebe (1982) in Nigeria, Watson (1984) in South Africa, and Gupta (1987) in India. Other studies have failed to find any significant gender difference in CM (Kelly & Colangelo, 1990; Thompson & Lindeman, 1984; Watson, Stead & De Jager, 1995). In a recent study in Australia by Patton and Creed (submitted), gender differences were evident in CM, but the pattern was far from uniform. On the attitude scale, females had lower scores than males at age 13 years and higher scores at ages 15 and 17. On the knowledge scale, females had higher scores than males at all age levels. Lokan (1984) suggested that the higher knowledge scores might reflect the gender differences often found in academic achievement in Australian secondary schools, where females outperform males in almost all curriculum areas. Certainly in the Patton and Creed study, the pattern for female and male differences on scores for knowledge was quite consistent, whereas it varied considerably for attitude.

King (1989) may provide another explanation for the inconsistent pattern of findings in the literature. King's study explored the relationship between sex differences in CM and age, parental aspirations, family cohesion, cultural participation, and locus of control. She established that age was the single most important determinant of CM for boys, whereas a sense of family cohesion and an internal locus of control were the main determinants for girls. Overall, the development of CM seems to differ for females and males. The latter result echoes earlier research by Lokan and Biggs (1982) for Australian students. Using the Australian CDI and several other instruments, these

authors identified four styles of career development behaviour in samples of mid- and upper-secondary students. The only style associated with gender was the least self-directed one, labelled as 'uncertain and confused', which was characterised by females with low Decision Making scores, low achievement motivation scores and high external locus of control, who were also found to have assigned themselves low self-efficacy ratings.

The relevance of socioeconomic status

While socioeconomic status has been theorised as likely to be an important determinant of career behaviour, even if acting largely through moderator variables (Super, 1990), most studies have found only a minor or no correlation between CM and SES in school age adolescents (Crites, 1978; Jordaan & Heyde, 1979; Super & Nevill, 1984) and in university students (Nevill & Super, 1988). Where a significant relationship has been found, it has usually been between SES and the cognitive CM scales (Super & Forrest, 1972; Lokan, 1977). However, some studies have concluded that economic background and differences in the schools attended played a greater role in CM than did racial background (Ansell & Hansen, 1971; Cosby & Picou, 1973; Neely & Johnson, 1981). More recently, Naidoo, Bowman and Gerstein (1998) examined a causal model of CM with African-American male and female university students. These authors reported that attributions of causality and work salience (the relative importance of work in an individual's life) moderated the effects of gender, SES and educational level on CM, and work salience was found to exert the strongest effect.

CM and course of study

There is some evidence in the literature to indicate that students studying programs at different levels or programs differing in nature manifest different levels of CM. At the college level, Tilden (1978) found that students in 'career specific'

professional programs scored consistently and significantly higher on both the attitudinal and cognitive dimensions of the CDI than students in more general social science and humanities courses. In ninth and tenth grades, students in vocational/technical courses in the US CDI standardisation sample scored higher on the attitude scales than students in general and college-preparatory programs. Thompson and Lindeman (1981), who reported this result, suggested the plausible explanation that the vocational/technical students would be entering the work force sooner than the other students and would very likely have planned and explored more than their counterparts in the middle secondary years. A similar finding, with similar justification, was reported by Lokan and Biggs (1982) for Australian grade 11 students intending to leave school that year to enter the workforce rather than continue with their studies. These differences between groups of school students at the same level may be part of the reason why increases in CM by grade level for aggregated groups have not been consistently demonstrated.

Cultural relevance of CM

While research has been conducted on the relevance of CM in ethnic groups within the US, very little work has been conducted outside the US to explore its relevance across cultures. Notable exceptions already discussed are studies conducted in Nigeria, Israel, Lebanon, India, Canada and, more recently, Australia. Even fewer are comparison studies across cultures. A considerable body of work has emanated from South Africa which has consistently shown that Black high school (Hickson & White, 1989; Watson & Van Aarde, 1986) and first year university students are less mature than their White counterparts (Reid-Van Niekerk & Van Niekerk, 1990; Watson, Stead, & De Jager, 1995). These researchers have identified a number of issues relevant to other cultural groups. One is that the assessment instruments, developed on Eurocentric principles, may be oriented to Western White values. Langley (1990) developed the

Career Development Questionnaire (CDQ) specifically for multicultural use in South Africa. Her standardisation samples consisted of high school students and university students with Afrikaans, English or an African language as their first language. Initial results on research with this measure suggest a cultural difference in CM (Langley; Watson et al, 1995), although the work of Baloyi (1996) found no difference between black and white students at private high schools, suggesting perhaps an effect related to socioeconomic status. Stead and Watson (1998) suggest that, due to the unique features of South African society, the CM construct may be inappropriate. Instead, these researchers suggest a focus on role maturity as this broader emphasis would allow “a particular culture or individual to define what are salient roles” (p. 42).

CM and role salience

The idea of role salience as a key factor in career development grew in Super's mind during the 1970s, as he realised that his theory needed to be broadened in order to widen its applicability to women, people of lower SES and people from minority groups. Rather than propose different theories for different subgroups of society, Super preferred to incorporate variables which could help to explain group differences in career-related behaviours. In relation to his conception of 'career' as comprising the various roles that people play in their lives – depicted in his 'life-career rainbow' (Super, 1980) – he envisioned that the relative importance assigned by individuals to roles at different stages of their lives would govern their commitment to and involvement in tasks associated with the roles, as well as the rewards they expected to experience in the roles (Nevill & Super, 1986).

These ideas were put to the test in the Work Importance Study (WIS), conceived by Super and carried out in several countries during the 1980s. The research carried out in the WIS itself, reported in Super and Sverko (1995) and reviewed by Niles and

Goodnough (1996), focused on role priorities of various groups and on relationships between role salience and values expectations. However, the existence of the study meant that a cross-nationally valid instrument, the *Salience Inventory*, became available for researchers to use in other investigations. Of relevance here are studies in which the relationship of the salience of student and/or worker roles to aspects of CM was examined, with the expectation that those for whom the salience of these roles is high would be expected to score higher on measures of CM.

Only a few studies of relationships between these constructs have been reported. One, the comprehensive study by Naidoo et al (1998), has been summarised above at the end of the section on socioeconomic status. Some of the studies have been undertaken in Australia. Sheridan (1981) developed an 'Orientation to Work' scale and used it together with a pre-publication version of the Australian CDI in a large sample of high school students in grades 8 to 12. He found positive correlations between the CDI scales and orientation to work of about .4 for the Career Planning scale, about .3 for the Career Exploration scale and about .2 for the cognitive CM scales. Levy (1987) found the relationships expected between study and work role salience and aspects of CM in her longitudinal study of Australian high school students, using the *Salience Inventory* (SI) and the Australian CDI. The CDI attitudinal scales were correlated with SI Participation and Commitment scales for study and work, but not for leisure, and the CDI cognitive scales were correlated only with SI scales pertaining to study and work roles. Lokan and Shears (1995) also reported similar relationships between aspects of role salience and CM for a different sample of Australian high school students.

CM and self-directedness

A number of personality-related variables have been investigated in relation to CM, particularly those pertaining to self-concept, self-efficacy, attributional tendencies and

achievement motivation. Interest in whether a tendency to attribute success to one's own efforts could be shown to be associated with higher levels of CM has been a continuing thread in the literature since the early work of Thomas (1974). Particular interest was shown in Canada, with three studies demonstrating a clear relationship of CM to an internal locus of control (Lokan, Boss & Patsula, 1982; Bernadelli, De Stefano & Dumont, 1983; Khan & Alvi, 1983). Similar results were reported for US students by Trice, Haire and Elliott (1989) and Jackson (1992). Building on these studies, Luzzo and Jenkins-Smith (1998) proposed an attributional model of career decision making, which Powell and Luzzo (1998) advocate as a useful basis for counsellors to address the career decision making needs of ethnically diverse groups of high school students.

CM and career indecision

Super's (1980) theorising about career development suggested that career decidedness is also a developmental construct – that is, definitive choices about career become more developed later in adolescence and early adulthood. Super noted that the primary life roles that make up the life-space during adolescence are pre-occupational; these life roles and their relative importance then change over time. Therefore researchers have explored career decidedness as another indicator of CM like exploration and planning, and have explored the relationship between the two constructs (Wallace-Brosious, Serafica, & Osipow, 1994). Several studies have reported a positive relationship between CM and career decidedness in undergraduate students; that is, students who were more mature were also more career decided (Brusoki, Gollin, Gallagher, & Moore, 1993; Hartman, Fuqua, & Hartman, 1983; Rogers & Westbrook, 1983). Similarly, with high school samples, Rojewski (1994) reported that career indecision was the single most important predictor variable of career immature young people.

CM and paid work experience

With increasing numbers of young people participating in paid work experience, either separate from their school program or as part of a vocational education and training component of their school program, researchers have turned their attention to exploring the effects of these experiences on the CM of adolescents.

As part of a longitudinal study, Niles and Herr (1989) investigated whether the amount of part-time work in high school is able to predict CM and career certainty in a sample of high school students in grades 9 to 12. Contrary to prediction, their results demonstrated that individuals who did a large amount of part-time work did not have higher levels of CM than those students who did not engage in part-time employment during high school. Niles and Herr suggested that this finding may have been the result of the work experiences' not being related to the students' career aspirations. The authors proposed that a need may exist for work experiences to be supplemented by additional career and self-exploration activities in order for part-time employment opportunities to have an impact on future career development.

Supporting these findings, Luzzo, McWhirter, and Hutcheson's (1997) study of a sample of 305 first year college students reported that those who were employed in occupations congruent with their career interests were more likely than other students (especially those who were unemployed) to believe more strongly that their career decision making was a process over which they had personal control. An additional finding, however, was a lack of relationship between employment status and career decision making self-efficacy. Apparently a student's confidence in his or her ability to engage in effective career decision making is no greater among those who are employed in occupations congruent with their career interests than among those with no employment. Thus, although students working in congruent occupations may have

higher levels of CM, they cannot be assumed to have higher self-efficacy for career decision making. In summary, Luzzo, McWhirter, and Hutcheson's investigation implies that students will benefit from part-time employment only when the job area is congruent with their career aspirations.

Loughlin and Barling (1998), using a sample of 349 high school students in grades 10 to 12, failed to find any significant negative effects of employment quantity on work-related attitudes, CM and career aspirations. Interestingly, CM scores were predicted by role stressors at work.

Finally, Loughhead, Liu, and Middleton (1995) evaluated a career development program (PRO-100) for inner city, at-risk youth aged between 14 and 18 years. PRO-100 contains two major components, paid work experience and a career development curriculum. The work component of PRO-100 aims to have interns adequately perform their duties and interact appropriately with coworkers. On the job, students are trained in horticultural skills, work etiquette, and appropriate communication techniques. The career development curriculum was designed to train students in job-securing skills and orient them to career planning. The interns were pre- and post-tested at program commencement and conclusion. The findings revealed that all the interns gained higher post-test scores on all five subscales of the 1978 version of the CMI. That is, all students recorded higher (although non-significant) levels of career decisiveness, work involvement, independence, career orientation and compromise in decision-making. Although the differences were not significant, the fact that all were uniformly in the same direction was taken to indicate a definite trend. Qualitative reports from the young people and their evaluators appeared to confirm that the young people had gained in career planning and in job search skills and that at-risk youth are likely to develop more

mature career attitudes and better career decision-making skills from being involved in career development programs that incorporate paid work experiences.

In a study (Creed & Patton, submitted) with 1356 14-17 year olds in Australia, all of whom were engaged in paid part-time work, the effects of paid work experience on CM present an interesting picture. As would be expected, mean scores were higher for students with work experience than for students without. In addition, this pattern was operating for females and males alike. This picture was essentially repeated in examining the subscale scores, although there were some interesting variations. For Career Planning, those with paid work experience recorded higher scores for 14, 16, and 17 year olds. Females with paid work experience recorded higher scores than females without such experience for 14, 16 and 17 year olds. For Career Exploration, this pattern emerged for 14 year olds only. For both Career Decision Making and World of Work Information, those with paid work experience recorded higher scores for 16 and 17 year olds.

These Australian data are contradictory to the limited research findings available to date. Niles and Herr (1989) found that their high school sample engaged in part-time work did not have higher CM scores, suggesting that the part time work may not have been related to the students' aspirations, an assertion also made by Luzzo, McWhirter and Hutcheson (1997). Similarly, Loughlin and Barling (1998) reported no association between employment quantity and CM.

The strong gender differences which were found in some earlier studies, as discussed above, also operated in relation to the paid work experience variable in Creed and Patton's study. For Career Exploration, Career Decision Making and World of Work Information, females at several age levels, whether or not they had experience in paid

work, reported higher scores than males in both groups. This suggests that the strength of the gender difference in CM operates over and above the paid work experience variable. The other studies of paid work already cited did not report gender scores separately. This finding will need to be explored further.

Conclusion

As shown in this review, the construct of career maturity has received considerable theoretical, conceptual and research attention. Included in this attention have been suggestions for ways in which the construct can be enhanced to make it more appropriate in times of changing career patterns and more applicable to a wider range of societal groups. The importance of taking contextual factors into account was part of Super's original formulation of the construct, as was the idea of adjustment as a component of mature behaviour. However, in the quest to substantiate his theories about stages and tasks, his early comments on the importance of contextual and contingency factors have typically been overlooked. Super himself proposed a change in terminology from 'career maturity' to 'career adaptability', which he considered to convey better the range of career-related attitudes, knowledge and skills at the various stages and transition points in career development (Super & Thompson, 1984). In this, and in his conceptualisation of role salience, he anticipated some of the research directions and propositions that were to be made for career maturity in the 1990s.

Recently, a special section in the *Career Development Quarterly* (Niles, 1998) was devoted to re-examining the construct of career maturity, reframed in this special section as 'career timing'. The argument proffered was that the relevance of *timing* in person-context interactions is not sufficiently captured in the portrayal of career maturity as based on *time* and age based stage models (Vondracek & Reitzle, 1998). The timing of

the interaction between the organism and the environment is an important underpinning of a number of recent theoretical formulations, for example the developmental contextual model of Vondracek, Lerner and Schulenberg (1986) and the social cognitive career theory of Lent, Brown and Hackett (1994). Research by Schmitt-Rodermund and Silbereisen (1998), which investigated career maturity in two cultural and social environments, demonstrated that career maturation is influenced by differences in social and political systems (as Super would have anticipated). The conclusion to this special section by Raskin (1998) emphasised the importance of integrating personality, decision-making style and contextual issues into research on career maturity.

Judging by the amount of research that continues to be reported on career maturity, almost 50 years since the construct was first proposed, it seems likely that it will remain alive and well for some time to come. These days, as foreshadowed by Super, researchers and theorists alike recognise the importance of including contextual issues in understanding the construct as it applies to different societal groups, in keeping with the current theoretical impetus to include contextual perspectives in the study of development in general. There is also recognition of the relevance of 'moderator variables' such as work role salience in understanding progress in career-related tasks. The career maturity construct has itself matured to a point where it may change in name or form to better reflect the rapidly changing world of work in the 21st century, but it would be surprising if many of the general principles proposed by Super did not remain central to any reformulation offered.

References

- Achebe, C. C. (1982). Assessing the vocational maturity of students in the East Central State of Nigeria. *Journal of Vocational Behavior*, 20, 153-161.
- Alvi, S. A. & Khan, S. B. (1983). An investigation into the construct validity of Crites' career maturity model. *Journal of Vocational Behavior*, 22, 174-181.
- Ansell, E. M. & Hansen, J. C. (1971). Patterns of vocational development in urban youth. *Journal of Counseling and Development*, 18, 505-508.
- Baloyi, D. K. (1996). *Career development in high schools: A systematic cross-cultural perspective*. Unpublished Master's thesis, University of Pretoria, Pretoria.
- Bernadelli, A., De Stefano, J. & Dumont, F. (1983). Occupational information-seeking as a function of perception of locus of control and other personality variables. *Canadian Counsellor*, 17, 75-81.
- Brusoki, G. C., Golin, A. K., Gallagher, R. P. & Moore, M. (1993). Career group effects on career indecision, career maturity, and locus of control of undergraduate clients. *Journal of Career Assessment*, 1, 309-320.
- Buros, O. K. (1978). *Eighth Mental Measurements Year Book (Vol II)*. Highland Park, NJ: Gryphon Press, reviews by Katz (p. 1562), Sorenson (p. 1567) and Zytowski (p. 1565).
- Cosby, A. G. & Picou, J. S. (1973). Structural models and occupational aspirations: Black-white variations among deep-south adolescents. *Journal of Vocational Behavior*, 3, 1-14.
- Creed, P. & Patton, W. (submitted). The effect of paid work experience on the career maturity of high school students. *Journal of Vocational Behavior*.
- Crites, J. O. (1965). Measurement of vocational maturity in adolescence: I: Attitude scale of the Vocational Development Inventory. *Psychological Monographs*, 79 (2, Whole No. 595).
- Crites, J. O. (1978). *Theory and research handbook for the Career Maturity Inventory* (2nd. Ed.) Monterey, CA: CTB/McGraw-Hill.
- Crites, J. O. & Savickas, M. L. (1995). *Career Maturity Inventory: Source book*. Clayton, NY: Careerware.
- Fouad, N. A. (1988). The construct of career maturity in the United States and Israel. *Journal of Vocational Behavior*, 32, 49-59.
- Gupta, N. (1987). Career maturity: A function of grade and sex. *Indian Psychologist*, 4, 19-31.

- Hartman, B. W., Fuqua, D. R. & Hartman, P. T. (1983). The predictive potential of the Career Decision Scale in identifying chronic indecision. *The Vocational Guidance Quarterly*, 32, 103-108.
- Healy, C. C., O'Shea, D. & Crook, R. C. (1985). Relation of career attitudes to age and career progress during college. *Journal of Counseling Psychology*, 32, 239-244.
- Healy, C. C., Mitchell, J. M. & Mourton, D. L. (1987). Age and grade differences in career development among community college students. *The Review of Higher Education*, 10, 247-258.
- Herr, E. L. & Enderlein, T. E. (1976). Vocational maturity: The effects of school, grade, curriculum and sex. *Journal of Vocational Behavior*, 8, 227-238.
- Hickson, J. & White, E. (1989). Career maturity development in black South African adolescents: Implications for vocational counselling. *South African Journal of Education*, 9, 77-81.
- Jackson, G. C. (1992). The career development of high-risk college students. Unpublished doctoral dissertation, University of California, Los Angeles (DAI 53, 3120-A).
- Jordaan, J. P. & Heyde, M. B. (1979). *Vocational maturity during the high school years*. New York: Teachers College Press.
- Kelly, K. R. & Colangelo, N. (1990). Effects of academic ability and gender on career development. *Journal for the Education of the Gifted*, 13, 168-175.
- Khan, S. B. & Alvi, S. A. (1983). Educational, social and psychological correlates of vocational maturity. *Journal of Vocational Behavior*, 22, 357-364.
- King, S. (1989). Sex differences in a causal model of career maturity. *Journal of Counseling and Development*, 68, 208-215.
- Langley, R. (1990). *Career Development Questionnaire (CDQ) manual*. Pretoria: Human Sciences Research Council.
- Lent, R. W., Brown, S. D. & Hackett, G. (1994). Toward a unifying theory of career and academic interest, choice and performance. *Journal of Vocational Behavior*, 45, 79-122.
- Levy, B. (1987). A longitudinal study of vocational maturity. Unpublished doctoral dissertation, Monash University (Melbourne, Australia).
- Lokan, J. (1977). Locus of control in relation to Super's theory of vocational maturity during adolescence. Unpublished doctoral dissertation, University of Ottawa.
- Lokan, J. (1984). *Manual of the Career Development Inventory -- Australian Edition*. Melbourne: Australian Council for Educational Research.

- Lokan, J. J., Boss, M. W. & Patsula, P. J. (1982). A study of vocational maturity during adolescence and locus of control. *Journal of Vocational Behavior*, 20, 331-342.
- Lokan, J. J. & Biggs, J. B. (1982). Student characteristics and motivational and process factors in relation to styles of career development. *Journal of Vocational Behavior*, 21, 1-16.
- Lokan, J. J. & Shears, M. J. (1995). Studies of work importance in Australia. In D. E. Super & B. Sverko (Eds), *Life Roles, Values and Careers: International Findings of the Work Importance Study*. San Francisco, CA: Jossey-Bass, pp. 77-99.
- Loughhead, T. A., Liu, S. & Middleton, E. B. (1995). Career development for at risk youth: A program evaluation. *The Career Development Quarterly*, 43, 274-291.
- Loughlin, C. A. & Barling, J. (1998). Teenagers' part-time employment and their work-related attitudes and aspirations. *Journal of Organizational Behavior*, 19, 197-207.
- Luzzo, D. A. (1993). Predicting the career maturity of undergraduates: A comparison of personal, educational, and psychological factors. *Journal of College Student Development*, 34, 271-275.
- Luzzo, D. A. (1995). The relationship between career aspiration-current occupation congruence and the career maturity of undergraduates. *Journal of Employment Counseling*, 32, 132-140.
- Luzzo, D. A., McWhirter, E. H. & Hutcheson, K.G. (1997). Evaluating career decision-making factors associated with employment among first-year college students. *Journal of College Student Development*, 38(2), 166-172.
- Luzzo, D. A. & Jenkins-Smith, A. (1998). Development and initial validation of the Assessment of Attributions for Career Decision Making. *Journal of Vocational Behavior*, 52, 224-245.
- Morocco, J. C. (1976). Vocational maturity of Arab and American high school students. *Journal of Vocational Behavior*, 8, 367-373.
- Naidoo, A. V., Bowman, S. L. & Gerstein, L. H. (1998). Demographics, causality, work salience, and the career maturity of African-American students: A causal model. *Journal of Vocational Behavior*, 53, 15-27.
- Neely, M. A. & Johnson, C. W. (1981). The relationship of performance on six scales of the Career Development Inventory to sex, father's education, and father's occupation. *Educational and Psychological Measurement*, 41, 917-921.
- Neice, D. E. & Bradley, R. W. (1979). Relationship of age, sex and educational group to career decisiveness. *Journal of Vocational Behavior*, 14, 271-278.
- Nevill, D. D. & Super, D. E. (1986). *The Salience Inventory: Theory, application and research* (Manual). Palo Alto, CA: Consulting Psychologists Press.

- Nevill, D. D. & Super, D. E. (1988). Career maturity and commitment to work in university students. *Journal of Vocational Behavior*, 32, 139-151.
- Niles, S.G. (1998). Special section introduction: Time and timing in career development. *The Career Development Quarterly*, 47(1), 4-5.
- Niles, S. & Herr, E. L. (1989). Using secondary school behaviors to predict career behaviors in young adulthood: Does "success" breed "success"? *The Career Development Quarterly*, 32, 345-355.
- Niles, S. G. & Goodnough, G. E. (1996). Life-role salience and values: A review of recent research. *Career Development Quarterly*, 45, 65-86.
- Patton, W. & Creed, P. (submitted). Developmental issues in career maturity and decision making readiness. *The Career Development Quarterly*.
- Ponterotto, J. G. & Casas, J. M. (1991). Handbook of racial/ethnic minority counseling research. Springfield, IL: Charles C Thomas.
- Post-Kammer, P. (1987). Intrinsic and extrinsic work values and career maturity of 9th and 11th grade boys and girls. *Journal of Counseling and Development*, 65, 420-423.
- Powell, D. F. & Luzzo, D. A. (1998). Evaluating factors associated with the career maturity of high school students. *The Career Development Quarterly*, 47, 145-149.
- Raskin, P. M. (1998). Career maturity: The construct's validity, vitality, and viability. *The Career Development Quarterly*, 47, 32-35.
- Reid-Van Niekerk, H. H. & Van Niekerk, E. C. (1990). Career maturity of black, coloured and white university students. *Journal of Industrial Psychology*, 16, 1-4.
- Rogers, W. B. & Westbrook, B. W. (1983). Measuring career indecision among college students: Toward a valid approach for counseling practitioners and researchers. *Measurement and Evaluation in Guidance*, 16, 78-85.
- Rojewski, J. W. (1994). Predicting career maturity attitudes in rural economically disadvantaged youth. *Journal of Career Development*, 2, 49-61.
- Rojewski, J. W., Wicklein, R. C. & Schell, J. W. (1995). Effects of gender and academic risk behaviour on the career maturity of rural youth. *Journal of Research in Rural Education*, 11, 92-104.
- Schmitt-Rodermund, E. & Silbereisen, R. K. (1998). Career maturity determinants: Individual development, social context, and historical time. *The Career Development Quarterly*, 47, 16-31.
- Sheridan, B. (1981). Career development in adolescents: Its relationship to orientation to work and locus of control. Unpublished doctoral dissertation, University of Western Australia.

- Stead, G. B. & Watson, M. B. (1998). The appropriateness of Super's career theory among Black South Africans. *South African Journal of Psychology*, 28, 40-43.
- Super, D. E. (1955). Dimensions and measurement of vocational maturity. *Teachers College Record*, 57, 151-165.
- Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior*, 13, 282-298.
- Super, D. E. (1990). A life -span, life-space approach to career development. In D. Brown & L. Brooks (Eds), *Career choice and development: Applying contemporary theories to practice* (2nd ed., pp. 197-262). San Francisco, CA: Jossey-Bass.
- Super, D. E. & Forrest, D. J. (1972). *Career Development Inventory Form I: Preliminary Manual*. New York: Teachers College, Columbia University.
- Super, D. E. & Nevill, D. D. (1984). Work role salience as a determinant of career maturity in high school students. *Journal of Vocational Behavior*, 25, 30-44.
- Super, D. E., Thompson, A. S., Lindeman, R. H., Jordaan, J.-P. & Myers, R. A. (1981). *Career Development Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Super, D. E., Thompson, A. S. & Lindeman, R. H. (1988). *Adult Career Concerns Inventory: Manual for research and exploratory use in counseling*. Palo Alto, CA: Consulting Psychologists Press.
- Super, D. E. & B. Sverko (Eds), *Life Roles, Values and Careers: International Findings of the Work Importance Study*. San Francisco, CA: Jossey-Bass.
- Super, D. E., Savickas, M. L. & Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown, L. Brooks & Associates, *Career choice & development* (3rd ed., pp. 121-178). San Francisco, CA: Jossey-Bass.
- Thomas, H. B. (1974). The effects of sex, occupational choice and career development responsibility on the career maturity of ninth-grade students. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago.
- Thompson, A. S. & Lindeman, R. H. (1981). *Career Development Inventory: Volume 1, Users' Manual*. Palo Alto, CA: Consulting Psychologists Press.
- Thompson, A.S. & Lindeman, R. H. (1984). *Career Development Inventory, Volume 2: Technical Manual*. Palo Alto, CA: Consulting Psychologists Press.
- Tilden, A. J. (Jr) (1978). Is there a monotonic criterion for measures of vocational maturity in college students? *Journal of Vocational Behavior*, 12, 43-52.
- Trice, A. D., Haire, J. R. & Elliott, K. A. (1989). A career locus of control scale for undergraduate students. *Perceptual and Motor Skills*, 69, 555-561.
- Vondracek, F. W., Lerner, R. M. & Schulenberg, J. E. (1986). *Career development: A life-span developmental approach*. Hillsdale, NJ: Erlbaum.

- Vondracek, F. W. & Reitzle, M. (1998). The viability of career maturity: A developmental-contextual perspective. *The Career Development Quarterly*, 47, 6-15.
- Wallace-Broschious, A., Serafica, F. C. & Osipow, S. H. (1994). Adolescent career development: Relationships to self-concept and identity status. *Journal of Research on Adolescence*, 4(1), 127-149.
- Ward, R. (1981). The use of the *Career Development Inventory* in Britain. Cambridge: National Institute for Careers Education and Counselling.
- Watson, M. B. (1984). *Career development of coloured high school pupils*. Unpublished doctoral dissertation, University of Port Elizabeth, Port Elizabeth.
- Watson, M. B. & Van Aarde, J. A. (1986). Attitudinal career maturity of South African colored high school pupils. *Journal of Vocational Behavior*, 29, 7-16.
- Watson, M. B., Stead, G. B. & De Jager, A. C. (1995). The career development of black and white South African university students. *International Journal for the Advancement of Counselling*, 18, 39-47.
- Westbrook, B. W., Cutts, C. C., Madison, S. S. & Arcia, M. A. (1980). The validity of Crites' model of career maturity. *Journal of Vocational Behavior*, 16, 249-281.
- Westbrook, B. W. (1984). Career maturity: The concept, the instruments, and the research. In W. B. Walsh & S. H. Osipow (Eds). *Handbook of vocational psychology* (Vol. 1, pp. 263-303). Hillsdale, NJ: Erlbaum.
- Williams, C. P. & Savickas, M. L. (1990). Developmental tasks of career maintenance. *Journal of Vocational Behavior*, 36, 166-175.